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ABSTRACT

In 1993 the Western Illinois University and Illinois State Board of Education Satellite Education Network broadcast a series of 10 half-hour instructional programs focused on mathematics inservice training for Illinois school teachers in grades 5-8 and 9-12. Project funding came from the Eisenhower Mathematics and Science Education Program through the Illinois State Board of Higher Education. Because the programs were broadcast to such a large potential audience, it is not possible to obtain accurate data on the exact number of teachers who actually watched the programs. More than 49 schools had initially committed to watch the programs, and they were later distributed to over 25,000 schools in Illinois and over 1,000 schools in Texas. Responses of 128 elementary school teachers and 93 high school teachers to a questionnaire indicated that the approach is cost-effective and particularly useful for smaller rural schools. Teachers agreed that the programs were well-organized and articulate, and few criticized the programs or their content. Teachers found the training worthwhile and were appreciative of the convenience of watching at their home schools. Dissemination in other communities has confirmed that these programs are a useful recourse for inservice training in a practical and cost-efficient format. Six tables present evaluation results. (SLD)

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## Mathematics Live: A Case Study Development of a Satellite Distance Education Program for Teacher Inservice

Between March 11 and May 13, 1993 the Western Illinois University/Illinois State Board of Education (WIU/ISBE) Satellite Education Network broadcast a series of 10 one-half hour instructional programs focused on mathematics inservice training for Illinois school teachers in grades 5-12. Five programs were designed for teachers in grades 5-8 and five for teachers in grades 9-12. The programs were broadcast by means of Ku and C-band satellite transmission with the signal being redistributed via cable television in the Chicago area via Chicago Access Cable Corporation and in Springfield by Dimension Cable.

The project was funded by a $40,611 federal grant through the Eisenhower Mathematics and Science Education Program. In late October 1992 when the project proposal was submitted to the Illinois Board of Higher Education (IBHE), administrators in 49 schools throughout Illinois had sent letters of agreement to the WIU/ISBE Satellite Education Network committing over 199 teachers who would watch the programs in their local area. School districts represented and the number of teachers committed in each district is shown in Table 1.

Once funding for the project was secured from IBHE, announcements were sent to the 108 schools scattered throughout Illinois which belong to the WIU/ISBE Satellite Education Network and which have satellite receive dishes. Also, written notice was sent to 10 private schools in the state which are located in close proximity to a public school with satellite reception facilities. Personnel at Western Illinois University's WIU/ISBE Satellite Education Network also prepared three 30 second video clips, advertising the 10 programs, which were aired repeatedly over a six week period in the Chicago area as public service announcements by Chicago Access Cable which provides cable TV to over 80,000 homes. Furthermore, the program series was "picked-up" via C-band satellite transmission by Springfield CUSD #186 and redistributed via Dimension Cable to a potential viewership of 25,000 homes in Springfield. In addition to statewide broadcasts of "Mathematics Live," the TI-IN Satellite Network based in San Antonio, Texas made the series available to more than 1000 schools in 32 states with Ku band receivers. Hence, although 49 schools agreed to have 199 teachers watch the programs, in reality the actual audience was considerably more than 199. College of Education administrators at WIU have received input from educators across the state indicating that teachers in their schools saw the programs and videotaped them. Because the programs were broadcast to such a large potential audience (both in Illinois and nationally) it is impossible to obtain accurate data on the exact number of teachers (and non-educators) who actually watched the programs or portions thereof.

### Project Accomplishments

Although the precise number of viewers is impossible to determine, specific accomplishments resulting from project funding can be identified. These include:

**TABLE 1**

LIST OF SCHOOL DISTRICTS WHICH PARTICIPATED IN THE PROGRAM AND THE NUMBER OF TEACHERS FROM EACH DISTRICT WHICH AGREED TO WATCH THE "MATHEMATICS LIVE" TELECASTS. MARCH 1993

| School District | Number of Teachers (includes facilitator) |
|---|---|
| Hinckley-Big Rock CUSD #429 | 9 |
| Cambridge CUSD #227 | 5 |
| Kewanee CUSD #229 | 11 |
| Williamsfield CUSD #210 | 6 |
| Gridley CUSD #10 | 5 |
| Lexington CUSD #7 | 8 |
| Illini Central CUSD #189 | 5 |
| Bement CUSD #5 | 5 |
| Schuyler County CUSD #15 | 7 |
| Scott-Morgan CUSD #2 | 4 |
| Springfield CUSD #186 | 50 |
| Christopher Comm. HSD #38 | 3 |
| Harrisburg CUSD #3 | 23 |
| Goreville CUD #1 | 6 |
| Macoupin County Region | 45 |
| Astoria CUSD #1 | 7 |
| Total | 199 |

- Based on agreements between 49 partnership schools, a minimum of 199 teachers watched the 10-segment program series. However, inasmuch as the programs were delivered by satellite statewide and nationally, and were redistributed by cable television in Chicago and in Springfield, the potential number of teachers who watched the programs (or portions thereof) far exceeds the 199 contracted teachers.

- Five 30-minute programs intended for teachers of grades 5-12 were aired. The program topic and objectives were in harmony with the 13 standards set by the National Council of Teachers of Mathematics (NCTM) for students in grades 5-8. Particular program emphasis was placed on NCTM standards 5, 8, 9, 10, 12, and 13 (number sense and number relations, patterns and estimation, algebra, statistics, geometry, and measurement). Specific program titles and dates of broadcast were:

  - Number Patterns and Relations, broadcast March 18.
  - Picture Patterns, broadcast April 1.
  - Numerical Approaches to Algebraic Thinking, broadcast April 15.
  - And How Long is That, broadcast April 29.
  - Is it Really One-Half, broadcast May 6.

- Five 30-minute programs intended for teachers of grades 9-12 were aired. The program topic and objectives were in harmony with the 14 standards set by the National Council of Teachers of Mathematics (NCTM) for students in grades 9-12. Particular program emphasis was placed on NCTM standards 1, 2, 3, 4, 5, 6, 11, and 13 (mathematics as problem solving, mathematics as communications, mathematics as reasoning, algebra, functions, probability, and conceptual underpinnings of calculus). Specific program titles and dates of broadcast were:

  - Numerical Approach to Algebra, broadcast March 11.
  - Simulation for Studies Involving Probability, broadcast March 25.
  - Mathematical Modeling for Optimization, broadcast April 8.
  - Motion and Rates of Change, a two-part program broadcast April 22 and May 13.

- Written lesson plans for each of the topics presented were provided participating teachers. Each is a detailed, step-by-step lesson outline of the concept/principle demonstrated in the TV broadcast and a list of suggested classroom activities for teachers to use in order to implement the concept/principle presented. Permission was granted schools to make photocopies of lesson plans and share them among teachers as desired.
- Videotapes of each of the broadcasts were produced. Participating schools were granted permission to make videotapes of each broadcast for review with teachers or later play-back. Videotapes and printed lesson plans/activities have been made available, at cost, to schools requesting copies. To date over 35 copies have been ordered by Illinois schools which did not formally participate in this Title II project.

- Graphic calculators were given to secondary teachers in 19 participating schools. These calculators are to be used by teachers to help students visualize modeling of advanced mathematical concepts.

- Distance learning delivered via the integration of both satellite and cable television technology received increased acceptance and credibility among schools as a viable means

to deliver inservice training to schools located in rural settings as well as in urban settings.

- Funding of "Mathematics Live" has spawned another program series entitled "Science Alive" which has been proposed to the Illinois State Board of Education under the federal Scientific Literacy program. This proposal is currently under review.

**Demographic Data of Teachers Watching "Mathematics Live"**

Demographic data was gathered from a sample of 45 teachers on the first night of the 5th-8th grade program series and from 24 teachers on the first night of the 9th-12th grade program series. A summary follows:

**Years of Teaching Experience:** Teachers watching the 5th-8th grade series of broadcasts were overall experienced teachers. Teaching experience ranged from two to 40 years with an average of 16.1 years teaching experience. Teaching experience for teachers watching 9th-12th grade programs was similar with a range of two to 31 years and an average of 17.5 years in the classroom. See Table 2.

**Grade Levels Taught:** Grade levels taught by teachers watching 5th-8th grade programs ranged from 2nd grade up through 12th grade. Of this audience, 60.7 percent taught in grades 5 through 8 (5th grade, 20.2 percent; 6th grade, 12.6 percent; 7th grade, 12.7 percent; and 8th grade, 15.2 percent). Interestingly, 39.3 percent taught classes outside the targeted 5th-8th grade teaching assignment. See Table 2.

For teachers watching the 9th-12th grade programs, 87.5 percent taught in the targeted classes. This was reported as follows: 9th grade, 22.7 percent; 10th grade, 22.7 percent; 11th grade, 21.6 percent; and 12th grade, 20.5 percent. See Table 2.

**School Size:** Teachers watching the 5th-8th grade broadcasts represented schools ranging from a total student enrollment of 90 to 2,500 students. The average school size was 455 students. Those watching the 9th-12th grade broadcasts represented schools ranging in size from 105 to 607 students with an average school enrollment of 289 students. The average number of math students taught by teachers watching the 5th-8th grade programs was 16. Of these, an average of three were reported as minority students. For teachers watching 9th-12th grade programs, the average number of students taught by each teacher was 86. Of these the average number of minority students was reported to be between two to three. See Table 3.

**Method of Program Delivery:** Delivery of the 10 telecasts was via satellite TV or cable TV. From the combined sample of teachers watching either the 5th-8th grade telecasts or the 9th-12th grade telecasts, 36.6 percent reported watching the programs at their home school; 41.5 percent watched at a school other than their home school; and 21.9 percent watched either by videotape at home or on cable TV at their home. Most participating teachers, 81.4 percent, watched on 19-inch TV screens, whereas 16.3 percent watched on 25-inch TV screens, and 2.3 percent watched on 32-inch TV screens. See Table 4.

**TABLE 2**

EXTENT OF TEACHING EXPERIENCE AND GRADE LEVELS TAUGHT BY SELECTED TEACHERS WATCHING "MATHEMATICS LIVE" TELECASTS. REPORTED FOR TEACHERS WATCHING 5TH-8TH GRADE TELECASTS AND THOSE WATCHING 9TH-12TH GRADE TELECASTS, MARCH 1993.

| 5th-8th Grade Telecasts (N = 45) | | 9th-12th Grade Telecasts (N = 24) | |
|---|---|---|---|
| Mean years teaching experience | 16.6 | Mean years teaching experience | 17.5 |
| Grade levels taught | | Grade levels taught | |
| 2nd grade | 2.5 percent | 7th grade | 2.3 percent |
| 4th grade | 1.3 " | 8th grade | 6.8 " |
| 5th grade | 20.2 " | 9th grade | 22.7 " |
| 6th grade | 12.6 " | 10th grade | 22.7 " |
| 7th grade | 12.7 " | 11th grade | 21.6 " |
| 8th grade | 15.2 " | 12th grade | 20.5 " |
| 9th grade | 8.9 " | Other | 3.4 " |
| 10th grade | 10.1 " | | |
| 11th grade | 7.6 " | | |
| 12th grade | 8.9 " | | |

**TABLE 3**

TOTAL STUDENT ENROLLMENT IN SELECTED SCHOOLS OF TEACHERS WATCHING "MATHEMATICS LIVE." NUMBER OF MATH STUDENTS TAUGHT BY EACH TEACHER AND NUMBER OF MINORITY STUDENTS TAUGHT BY EACH TEACHER, REPORTED BY MEANS AND MEDIANS, MARCH 1993.

| 5th-8th Grade Telecasts (N=25) | Mean | Median |
|---|---|---|
| Total number of students in school | 455.0 | 350.0 |
| Total number of math students taught by reporting teacher(s) | 16.4 | 17.1 |
| Total number of minority students in math classes taught by reporting teacher(s) | 3.0 | 1.0 |
| 9th-12th Grade Telecasts (N=16) | | |
| Total number of students in school | 288.7 | 250.0 |
| Total number of math students taught by reporting teacher(s) | 86.3 | 85.0 |
| Total number of minority students in math classes taught by reporting teacher(s) | 2.11 | 1.0 |

**TABLE 4**

METHOD OF PROGRAM DELIVERY AND TV SCREEN SIZE FOR SELECTED SAMPLE OF TEACHERS WATCHING "MATHEMATICS LIVE." DATA IS COMBINED FOR TEACHERS WATCHING 5TH-8TH GRADE TELECASTS AND FOR THOSE WATCHING 9TH-12TH GRADE TELECASTS. REPORTED BY INDIVIDUAL TEACHERS, MARCH 1993.

| Program delivery (N = 59) | Percent |
|---|---|
| Watched TV programs via satellite at home school | 36.6 |
| Watched TV programs at school other than home school | 41.5 |
| Watched TV programs at personal residence via cable TV or on videotape | 21.9 |
| **Size of TV Screen (N = 54)** | |
| 19 inches | 81.4 |
| 25 inches | 16.3 |
| 32 inches | 2.3 |

For teachers watching the telecasts via satellite, the average number of teachers watching at each participating satellite downlink site was 4.4 for the 5th-8th grade telecasts and 3.0 for the 9th-12th grade telecasts.

**Teacher Attitudes About Distance Education Delivered Inservice:** Teacher responses to Likert questions on a scale of "1" to "5" indicated that the vast majority of teachers (79.8 percent) agreed that staff development programs offered via TV at their local school or in close proximity to where they teach is a good resource for teachers. Three-fourths (73.9 percent) stated that they preferred staff development training delivered via distance learning rather than traveling to an education service center, a university, or some other location away from or near the school where they teach. This same number (73.5 percent) indicated that additional teacher inservice training programs need to be provided via a televised distance learning mode. Two-thirds of the teachers (67.6 percent) felt it was important for the distance learning programs to be interactive -- that is, teachers could telephone the TV teacher to ask questions if they desired. Two-thirds also indicated that the 4:00 to 4:30 pm telecast time for the inservice programs was a good time for them, whereas 21.5 percent indicated it was not. For those requesting a different broadcast time, the most frequent request was to broadcast from 3:30 to 4:00 pm. See Table 5.

**Other Staff Development Needs Identified by Teachers:** As noted, almost three-fourths of the teachers indicated that additional staff development programs should be offered via TV to their schools. In general terms, the topics most frequently mentioned were effective teaching practices for teachers, additional math/science training, teacher use of computers, current events for social studies students, English grammar, classroom management, and student motivation.

**Teachers' Evaluation of "Mathematics Live" 10 Telecasts**

A 14-item questionnaire seeking input from teachers watching "Mathematics Live" was collected from a sample of teachers at the conclusion of each of the 10 broadcasts. The sample for teachers watching the five telecasts for grades 5-8 included responses from 128 teachers. The sample for those watching the five telecasts for grades 9-12 included responses from 93 teachers. A summary of teacher responses for the five 5th-8th grade telecasts and the five 9th-12th grade telecasts follow:

**Teacher Opinions about Program Quality:** On a Likert rating scale of "1" to "5," almost all teachers (93.4 percent) stated that teachers watching the program at their site were highly attentive during the telecasts. They also agreed that the TV screen size was large enough to watch the program adequately (86.2 percent agreement) and that the audio quality of the telecasts was clear (79.9 percent agreement). Likewise, most (85.2 percent) agreed that the concepts/ideas presented in the telecasts were well organized The majority (66.6 percent) reported that the printed lesson plans which accompanied each broadcast would be very useful in their own teaching. A

**TABLE 5**

TEACHER ATTITUDES ABOUT DISTANCE EDUCATION DELIVERED INSERVICE. REPORTED ON A LIKERT SCALE OF "1" TO "5" WHERE "1" REPRESENTS "STRONGLY DISAGREE" AND "5" REPRESENTS "STRONGLY AGREE." MARCH 1993.

| Statement | N | Mean Rating | Percent Disagree | Percent Neutral | Percent Agree |
|---|---|---|---|---|---|
| Staff development programs for teachers via TV are a good resource for teachers at my school. | 69 | 4.2 | 0 | 20.2 | 79.8 |
| Additional staff development programs offered via TV need to be provided at my school. | 68 | 4.0 | 10.3 | 16.2 | 73.5 |
| It is important that teachers watching TV programs have an opportunity to telephone the TV teacher to ask questions. | 68 | 3.6 | 5.9 | 26.5 | 67.6 |
| I prefer staff development training offered via TV than traveling to an education service center, a university, or other location away from my home or school. | 69 | 4.1 | 7.2 | 18.9 | 73.9 |
| The time schedule for this series of TV programs (4:00 pm) is a good time for me. | 65 | 3.8 | 21.5 | 12.3 | 66.2 |

similar number (62.5 percent) agreed that the telecast concepts were applicable to teach to their own students, and that the TV teacher presenting the lessons was easy to follow and understand (76.2 percent agreement). Yet, only half of the teachers (56.1 percent) felt that the TV teacher was able to "reach out" via the television medium to make them feel a part of the distance learning classroom. See Table 6.

**Aspects Teachers Liked Best about the Telecasts (8th-9th Grade Telecasts):** A total of 58 written responses was offered by teachers identifying positive aspects about the telecasts. Almost all of these centered on the quality of written materials accompanying each lesson. Teachers seemed genuinely appreciative of the written handouts they received. Several also stated that they liked the time frame of the programs (one-half hour format).

**Suggestions Teachers Offered for Program Improvement (8th-9th Grade Telecasts):** A total of 41 written comments was offered by teachers suggesting ways in which the telecasts might be improved. The most frequent suggestions asked that the TV teacher slow down the pace of his presentation. About one-third of the comments asked that the pacing not be quite so fast. Another area of concern that seemed to be shared by a number of teachers was technical quality of the TV broadcast. At some sites the sound quality and/or picture quality was not ideal. A few teachers also indicated that the content level of the material was higher than what they would use with their own students.

**Aspects Teachers Liked Best about the Telecasts (9th-12th Grade Telecasts):** A total of 49 written comments was offered by teachers noting positive aspects about the program. These seemed to center on three areas -- (1) quality of printed handouts, (2) explanations on how to use the TI-81 graphic calculators which were provided to many schools as part of the funded project, and (3) acknowledgement that useful ideas were presented to teachers. Written comments by teachers seemed to clearly indicate that the telecasts were perceived as being useful and were appreciated by participating teachers.

**Suggestions Teachers Offered for Program Improvement (9th-12th Grade Telecasts):** Twenty-one written comments were offered as suggestions to improve telecasts in the future. As with the 5th-8th grade telecasts, concern was expressed by several teachers relative to the technical quality of the broadcasts. A few teachers also felt that the TV presenter tried to cover too much information in a 30-minute broadcast and that he occasionally went too fast. Several other teachers complained about the selection of the TI-81 graphic calculator as the instructional model. They preferred other brand names instead of the Texas Instruments calculators. A few also indicated that it was sometimes difficult on the TV monitor to see the calculator key-stroke entries made by the TV presenter on the TI-81 calculators.

**Observations Gleaned from Site Visitation:** Site visits were made by project administrators to four schools during four of the 10 telecasts. The purpose of site visits was to

**TABLE 6**

TEACHER RESPONSES TO PROGRAM QUALITY REPORTED ON A LIKERT SCALE OF "1" TO "5" WHERE "1" REPRESENTS "STRONGLY DISAGREE" AND "5" REPRESENTS "STRONGLY AGREE." REPORTED FOR TEACHERS WATCHING 5TH-8TH GRADE TELECASTS AND THOSE WATCHING 9-12 TELECASTS. MARCH-MAY 1993.

| Statement | N | Mean Value | Percent Disagree | Percent Neutral | Percent Agree |
|---|---|---|---|---|---|
| The teachers who watched this program with me were very attentive ("on task") during the telecast. | 198 | 4.3 | 1.4 | 5.2 | 93.4 |
| The TV screen is large enough for me to clearly see the information presented by the TV teacher. | 221 | 4.4 | 2.8 | 11.0 | 86.2 |
| The concepts/ideas presented in today's telecast were well organized by the TV teacher. | 211 | 4.3 | 2.8 | 12.0 | 85.2 |
| The audio quality of the telecast is clear and precise, allowing me to easily listen to the program. | 214 | 4.0 | 12.9 | 7.2 | 79.9 |
| The printed lesson materials which I received as part of this program will be very useful in my own teaching. | 199 | 3.6 | 12.1 | 21.3 | 66.6 |
| The TV teacher was easy for me to understand. | 218 | 3.9 | 3.6 | 20.2 | 76.2 |
| The information provided is something which I will be able to apply in my own teaching. | 214 | 3.6 | 15.7 | 21.8 | 62.5 |
| The TV teacher is able to "reach out" via the TV and make me feel a part of the "extended" classroom. | 213 | 3.5 | 14.1 | 29.8 | 56.1 |

meet school administrators and visit with teachers to better understand the project's perceived value among users and to get insights from users on how to best meet their needs. Information gleaned from site visits confirmed written comments expressed by teachers on the questionnaires when they identified positive aspects about the programs and offered suggestions for program improvement. During the site visits, all stated that they found the telecasts to be useful and that they enjoyed them. Teachers were uniformly pleased with the 30-minute telecast format and that they could receive inservice training either at their home school or close to home without having to travel a long distance. They also stated that broadcasting the telecasts at 4:00 to 4:30 pm permitted them to watch the series shortly at the close of the school day without the need to return in the evening for inservice training. This was a convenience they appreciated. Teachers were particularly complimentary in regard to printed materials received with each lesson broadcast. They reported that the lesson concepts were well organized, kept focused on one central idea, and would be useful in their future lesson planning. All broadcasts at visited sites were videotaped for future play-back or review.

When asked how the programs might be improved, teachers offered only a few suggestions. Some felt that the pace of the presentation was too fast and as a consequence felt reluctant to telephone the studio to ask questions or otherwise interact with the TV teacher. Despite this criticism, however, they agreed that the content was meaningful and that the TV presenter was trying to share a much information as possible in the time allowed.

## Conclusions and Recommendations

Based on an analysis of project objectives completed, questionnaire results from teachers, interviews with participants, and observations made during site visits, the following conclusions/recommendations are drawn:

1. "Mathematics Live" is a cost-effective approach for inservice training of teachers. A total of 199 contracted teachers were served at a total cost of $40,611. This breaks down to an average cost of $204 per teacher served. The training included 10 telecasts. Teachers watching the 5th-8th grade telecasts participated in five telecasts as did teachers watching the 9th-12th grade telecasts. A further breakdown shows the program cost for each teacher served per individual telecast to be approximately $41.

2. In all likelihood, the actual size of the audience served far exceeded the 199 teachers contracted to participate in this program thereby significantly reducing the program cost per teacher served. Inasmuch as the program was broadcast both by satellite transmission throughout Illinois and the nation, and via cable television to Chicago and Springfield,the potential viewing audience was very large.

3. The production of 10 teacher inservice telecasts, now available on videotape, and accompanying printed lesson materials are a valuable resource available to mathematics teachers (both public and private) throughout Illinois. The videotape series and handouts can be purchased at cost from the WIU/ISBE Satellite Education Network.

4. The program series targeted and seemed to particularly benefit the state's smaller rural schools. Letters of agreement to participate in this project came chiefly from this audience. Unless quality programs are provided via telecommunicated distance learning to teachers in these schools, they are typically under served relative to meaningful staff development opportunities.

5. Teachers participating in this project were overall seasoned professionals with an average of 16-17 years teaching experience. Consequently, most have had sufficient experience in the classroom to objectively judge the quality of inservice training they receive. Almost 80 percent of teachers agreed that televised courses via distance education were a beneficial resource for staff development and three in four teachers agreed that additional staff development programs delivered via TV are needed in their schools.

6. Teachers who participated in this program were highly attentive during each broadcast and agreed that the TV presenters were well organized and articulate. In both programs (5th-8th grade telecasts and 9th-12th grade telecasts), the majority of teachers indicated that the inservice training received would be applied to their own teaching.

7. Few teachers were critical of the telecasts, their quality, or the usefulness of content learned for future applications in their own teaching. A number of teachers did complain about audio/video technical problems of TV equipment at their schools. Concern was also expressed from the study questionnaires that the TV presenters occasionally went too fast for teachers watching the telecasts. Interviews with teachers during on-site visits confirmed these concerns, yet also acknowledged that participating teachers did enjoy the programs and that they found the training received to be very worthwhile. Teachers realized that the TV presenters were trying to share a variety of ideas with teachers within a small amount of time. Concerns about equipment malfunction and program pacing need to be addressed in future distance learning telecasts.

8. The convenience of watching the TV programs either at their home school or in close proximity to their home school was mentioned by teachers as a very positive feature of the project. The quality and usefulness of printed handouts to accompany each telecast was another highly positive feature. Teachers noted that videotaping of each telecast allowed them to watch a program they might have missed when it initially aired or review it later if desired. During site visits, teachers mentioned that the 30-minute time frame for telecasts was very good for them. Although the pace of instruction seemed rapid, teachers said they were exposed to a variety of ideas without having to sit so long that they felt "burned out."

## Remarks

When submitted to IBHE for funding consideration, the concept of "Mathematics Live" was seen as a new model for distance education delivery. In the past, the WIU/ISBE Satellite Education Network's target audience has been teachers in our state's small/rural schools. This continues to be a major thrust of the network, however, efforts have been extended to also serve teachers in urban and metropolitan schools as well. Hence, the linkages with Chicago Cable Access to redistribute the program to 80,000 homes in Chicago and with Dimension Cable to send the signal to 25,000 homes in Springfield. The intent has been to make the program accessible to as large a viewing audience as possible.

The 30-minute format was intended as a means of keeping the training brief and to the

point. Printed handouts, accompanying each telecast, allowed teachers the opportunity to focus their attention and interest on the content of the telecasts without the need to take extensive notes. The fact that sites received printed handouts and were encouraged to videotape the telecasts was intended to convey the message to teachers that the content of each telecast could be easily retained and reviewed at the discretion of the teacher(s). Staff development programs that extend beyond an hour during one sitting -- especially at the end of a stressful school day -- often become counter productive by leaving teachers "burned out."

It is hoped that this first year of "Mathematics Live" will be seen as the beginning of an ongoing resource for Illinois teachers. Efforts will be made by the WIU/ISBE project team to secure funding for future programs. Lessons learned from this first year of broadcasts will be incorporated to improve programs for the future. Hopefully, this model will be seen as a viable approach to help meet staff development needs for math teachers in the urban, rural, and metropolitan schools of Illinois.